

TECHNOLOGY OFFERS

Compact Multileaf-Collimator with Small Diameter (P-901)

Multileaf-Collimator with a variable field size for use in smaller accelerators

EXECUTIVE SUMMARY

Currently, Multileaf Collimators (MLC) are established and state of the art in numerous devices for radiotherapy used for cancer treatment. However, the established MLC comprising 80 and more leaves require an enormous space at the level of the leaves together with corresponding drive elements and position measuring/ acquisition. Since space is very limited within the head of linear accelerators the invention proposes a smaller sized compact MLC, which comprises a new design regarding the driving elements.



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Category

Devices

Indication

Radiotherapy

Development stage

Prototype

Seeking

Licensing

BENEFITS

- Variable field sizes through MLC
- Small required space for Compact MLC
- Application for smaller accelerators and robotic treatment

TECHNOLOGY BACKGROUND

The invention describes a known collimator with established MLC design, which comprises a new design regarding the driving elements. The number of leaves shall be in the range of 60 to 80, whereas the field size should cover for instance 10 x 12 cm. It is not intended to equip the MLC with overtravel technology. The MLC leaves are tapered and within the guiding elements bedded for sliding movement. Drive components are arranged perpendicularly to the beam middle axis towards the direction of the beam source. In addition the drive components are coupled to the leaves using appropriate redirection, which can be accomplished for instance, by the following design proposals: Spring-loaded leaves can be moved using wire-similar parts. Thereby the leaves are pressed or pulled in the basic position to the radiation center and pulled by means of the wires into the desired position. The monitoring of the leaf position is possible for example with wire rope potentiometers. By means of guide rollers the pulling direction is turned by 90° toward the leaf movement.

DEVELOPMENT STAGE

Currently the proposal of the technical solutions exist and the evaluation of the most efficient design (see 3 Figures) is in evaluation and a prototype of the invention is intended to be completed in 2010.

APPLICATIONS

MLC for smaller and flexible linac accelerator in radiotherapy for cancer treatment.

INTELLECTUAL PROPERTY

Patented.

- PCT published as WO2012089535A1.
- Priority patent application EP2658609 dated December 12th in 2011. Subsequent European patent granted EP2658609B1. USA granted May 6th in 2014 as US8718234B2.

PUBLICATIONS & REFERENCES

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The DKFZ with its more than 3,000 employees is the largest biomedical research institution in Germany. At the Center more than 1,300 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg